

Introduction

The Meridian Communications Adapter (MCA) and Meridian Communications Unit (MCU) provide an RS-232C/V.35 interface between compatible asynchronous or synchronous data terminal equipment (DTE) and the Meridian 1 switching network. Both interface with the digital line card (QPC578/NT8D02). MCU/MCA connect to the DTE for intra-switch communications and for wide area communications over Digital Trunk Interface (DTI) or Primary Rate Interface (PRI) links to other Northern Telecom switches.

The MCA fits inside a Meridian Digital Telephone to provide access to data functions. The MCU, available beginning with X11 release 19, is a stand-alone version of the MCA that replicates the functionality of the MCA and provides additional features.

Note: The MCA should be configured with a display to facilitate programming from the telephone keypad.

Most of the information you need to operate the MCA and MCU is available in the following chapter, “Description and operation” on page 9. Read this chapter carefully for information on using the MCU keypad and terminal keyboard. Subsequent chapters contain more technical information on specifications, installation, and troubleshooting.

Communications software

Most commercial MS-DOS and Macintosh communications packages are compatible with the MCU/MCA and personal computers for internal and external communications. Ask your Northern Telecom representative for information.

Public Switched Data Service

The Public Switched Data Service (PSDS) lets you receive data at 56 Kbps over Digital Trunk Interface (DTI) trunks beginning with X11 release 16 and at 64 Kbps over an ISDN Primary Rate Interface (PRI) channel beginning with X11 release 19. It also allows interworking with non-Northern Telecom switches.

Beginning with X11 release 18, set PSDS in LD 11. For more information, refer to the Public Switched Data Service section in *X11 features and services* (553-3001-305).

Meridian Communications Adapter

The MCA replaces the MPDA with X11 release 18 and offers enhanced functionality over the MPDA. The MCA may be configured as an MPDA for use with X11 releases 14 through 18. The MCA when combined with the redesigned footstand (January 1998) no longer requires the Power Option board. The MCA data functions are configured using LD 11.

Functional description

The MCA mounts within the telephone and allows synchronous and asynchronous ASCII terminals, and personal computers to connect to the telephone using an RS-232-C or V.35 interface on a DB-25 connector. Beginning with X11 release 14, the MCA also allows synchronous applications (DTEs such as video conferencing equipment and Group IV fax units) to be connected to the telephone.

1.5 MB PRI (QPC720) and 2.0 MB PRI (NT8D782AA) support MCA, although 2.0 MB does not support the on-board protocol converter. MCA supports the DM-DM proprietary protocol for the Meridian 1, the TLink protocol for DMS, and the PSDS protocol for synchronous 64 or 56 Kbps clear data path applications on external trunks only.

X11 releases 14 through 17 allow programming access to data functions through the keypad only. However, X11 release 18 and later allow programming access to data functions using both the keypad and service change in LD 11.

Software support

Meridian 1 fully supports MCA. [Table 1](#) shows the domestic and international support for trunk interworking, configuration, and protocols.

Table 1
Software support

	X11 release 17 (and earlier)	X11 release 18 (and later)	International Software	
			Phase 7C (16.90 G)	Phase 8B
Trunk interworking				
Stand-alone	yes	yes	yes	yes
Private Q.931 network	—	—	yes	yes
ISDN trunks	yes	yes	no	yes
DPNSS/DASS	—	—	no	yes
Configuration				
LD 11	Configure as MPDA	Configure as MPDA or MCA	Configure as MPDA	Configure as MCA
Digital set keypad	yes	yes	yes	yes
Protocols				
DM-DM	yes	yes	yes	yes
TLINK	no	yes	no	yes
PSDS	yes*	yes*	yes	yes
Timed protocol step through	no	yes	no	yes**
* PSDS is available beginning with X11 release 16				
**If configured as DTAO=MCA				

Meridian Communications Unit

The MCU allows you to transmit and receive data using either PSDS over the public network or a private network. The MCU, which replaces the QMT21C, is designed for domestic and international use, with transmission speed up to 19.2 Kbps (asynchronous) and 64 Kbps (synchronous), integrated display, and self diagnostics. MCU supports autodialing, ring again, and speed calling as well as autobauding and automatic parity detection. You can use the MCU for

- Video conferencing
- LAN bridging
- Bulk data/PC file transfer
- Dial back-up
- Host connectivity
- MPH connectivity

The MCU fully complies with RS-232C and must be configured as DCE to connect to a terminal, printer, fax machine, or similar peripheral equipment.

Note: If you are using MPH mode, the MCU *must* be configured as a DTE. In non-MPH mode, MCU cannot be configured as a DTE.

Unlike MCA, MCU provides dedicated call keys and call progress tones.

The MCU supports the DM-DM, T-Link and PSDS protocols. It also supports V.25 bis, Northern Telecom menu, and AT command dialing interfaces, as well as RS232C, CCITT V.35, CCITT V.24 and RS570/RS449 (with different cables) physical layer one interfaces. The MCU complies with V.28 physical layer one interface for European approval.

Processing, power, and protocols

MCU includes a motherboard that performs all the processing requirements for the data adapter and the interface to the Meridian 1. A daughter board provides a power supply connector (+5, +12, and -12 volts), DB-25 connectors to the data equipment, and RS232/V.35 drivers/receivers for the MCU.

The MCU supports existing MCA features except for Meridian TeleCenter and Voice PCM support. It provides multiple protocols (DM-DM, T-Link, V.25 bis, AT commands, PSDS), dedicated data and feature keys, and call progress tones (provided through a speaker) generated by 8-bit Digital to Analog converters. The unit also includes a display.

Features

Asynchronous features supported by MCA and MCU include:

- Transmission rates of 110 TO 19200 bps
- Enhanced Hayes AT commands, including upper and lower case dialing
- Script file capability that replays a dial-up and log on sequence to access a host or service (MCA only)
- Voice Call Orientation (VCO) capabilities (MCA only)
- Autobaud and autoparity detection
- Host/Terminal mode
- Speed Call
- Forced/Dynamic DTR (Data Terminal Ready)
- Forced/Dynamic DCD (Data Carrier Detect)
- Modem Pool Calling
- Inactivity timeout disconnect
- RTS/CTS hardware flow control for calling another MCU/MCA

Synchronous mode features supported by MCU/MCA include:

- Transmission rates of 1200 to 64000 bps
- Full Duplex transmission up to 64K bps
- Half Duplex transmission up to 19.2K bps
- Internal/External Clocking
- Speed Call (MCU only)
- Modem and Network capability
- Public Switched Data Services (PSDS) capability. MCU/MCA extend PSDS (56K or 64K) and 64K restricted and 64K clear capabilities to modular phones.
- V.25bis dialing protocol supports all synchronous speeds up to 64K. Both High-level Data Link Control (HDLC) and Bisync framing of V.25bis commands are supported.
- Programmable echo canceller disabling for 56K and 64K PSDS calls.
- V.35 hardware interface capability selectable with jumper plugs.

Synchronous *and* asynchronous mode features supported by MCU/MCA include:

- Autodial
- Ring Again
- Display (MCU only)
- Remote Loopback
- Hotline
- Virtual Leased Line
- T-Link and DM-DM protocol support
- T-link and DM-DM are Northern Telecom proprietary protocols. The SL-100 and DMS data services use T-link. Meridian 1 data devices such as ASIM, AIM, SADM and MPDA use DM-DM. MCA and MCU can use both protocols.

Note: Additionally, MCU provides call progress tones and dedicated feature keys for the DDN, Autodial, Ring Again, Speed Call, and display features.

Related documents

For information on data adapters, including MCA, refer to the last chapter of *Meridian 1 telephones description and specifications* (553-3001-108). For information on related and complementary products, please refer to the following documents:

- *Meridian Communications Adaptor user guide*
- *QPC723 RS-232 Interface Line Card description, installation, and operation* (553-2731-106)
- *QPC918 High Speed Data Card description, installation, and operation* (553-2731-108)
- *Meridian data features traffic engineering and configuration* (553-2731-151)
- *Enhanced Asynchronous Interface Line Unit description and formats* (553-2731-203)
- *Meridian data features operation and tests* (553-2731-300)
- *NT7D16 Data Access Card description and operation* (553-3001-191)
- *X11 input/output guide*